



Laboratory Report Number: L12020091

Mark Lyon Environmental Waste Solutions 2440 Louisiana Blvd Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact: Stephanie Mossburg – Team Chemist/Data Specialist (740) 373-4071 Stephanie.Mossburg@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on February 16 2012

David E. Vandenberg

David Vandenberg – Managing Director

State of Origin: NM

Accrediting Authority: N/A ID:N/A

QAPP: DOD Ver 4.1





Microbac Laboratories * Ohio Valley Division 158 Starlite Drive, Marietta, OH 45750 * T: (740) 373-4071 F: (740) 373-4835 * www.microbac.com



Discrepancy

Н

Lab Report #: L12020091 **Lab Project #:** 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Resolution

34575034110000008730131696542156

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

0014141

Coolers	Cooler #	Temperature Gun	Temperature	COC #	Airhill #	
	Coolers					

0.0

Inspe	ction Checklist	
#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct perservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	NA



Lab Report #: L12020091 **Lab Project** #: 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Samples Received			
Client ID	Laboratory ID	Date Collected	Date Received
MPL23-0212-1	L12020091-01	02/02/2012 11:40	02/03/2012 10:30



Login Number: L12020091
Department: Conventionals

Analyst: Holly Reed

METHOD

Analysis SW846 9040C,9045D/EPA 150.1/SM4500-H B (pH)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met. **Duplicates:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 42232

Iranna / bsson



Login Number: L12020091

Department: Metals **Analyst:** Erin Long

METHOD

Preparation: SW-846 3005 Analysis: SW-846 6010

HOLDING TIMES

Sample Preparation: All holding times were met. **Sample Analysis:** All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG388881 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41888

Approved By: Sheri Pfalzgraf

Sheri L. Plakgraf



Login Number: L12020091 Department: Metals

Analyst: Ji Hu

METHOD

Preparation: SW-846 3015 Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met. **Sample Analysis:** All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met. Interference Check Standards: All acceptance criteria were met.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: WG388946 - The continuing calibration blank analyzed on 06-FEB-2012 at 17:15 yielded a noncompliant result for thallium. Client sample 01 as well as the batch QA/QC were reanalyzed on a later calibration for thallium. The continuing calibration blank analyzed initially on 07-Feb-2012 at 12:58 yielded a noncompliant result for thallium. The continuing calibration blank was reanalyzed at 13:07 prior to sample analysis and was compliant for all analytes of concern.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG388879 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41860

Approved By: Sheri Pfalzgraf

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Generated at Feb 9, 2012 11:14



Login Number: L12020091 Department: Metals - AA Analyst: Pierce Morris

METHOD

Preparation: SW-846 7470 Analysis: SW-846 7470

HOLDING TIMES

Sample Preparation: All holding times were met. **Sample Analysis:** All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG389023 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41932

Approved By: Sheri Pfalzgraf

Sheri L. Habarak



Login Number: L12020091

Department: General Chromatography

Analyst: Jeremy Kinney

METHOD

Analysis SW-846 9056/300.0

HOLDING TIMES

Sample Preparation: All holding times were met. **Sample Analysis:** All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met. **Surrogates:** All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and

benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor will be required.

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Generated at Feb 10, 2012 15:21

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Narrative ID: 41974

Approved By: Mike Cochran

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Generated at Feb 10, 2012 15:21



Login Number: L12020091 Department: Conventionals Analyst: Deanna Hesson

METHOD

Analysis EPA 310.2 (Alkalinity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met. **Duplicates:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42230

Iranna / bsson

Approved By: Deanna Hesson

Generated: 02/16/2012 15:01



Login Number: L12020091 Department: Conventionals Analyst: Dorothy Payne

METHOD

Analysis SW846 9014/9010C/SM4500-CN-C,E-20th (Cyanide)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Cyanide-Ammenable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammenable (the treated portion is ND). The LCS forms cannot calculate cyanide ammenable. The LCS is acceptable.

Matrix Spikes: All acceptance criteria were met. **Duplicates:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42236

Iranna / bsson



Login Number: L12020091 Department: Conventionals Analyst: Dorothy Payne

METHOD

Analysis EPA 120.1/SM2510 B (Conductivity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met. **Matrix Spikes:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42231

Iranna / bsson



Login Number: L12020091 Department: Conventionals Analyst: Deanna Hesson

METHOD

Analysis EPA 350.1/SM4500-NH3 B(NH3)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met. **Matrix Spikes:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42233

Iranna / bsson



Login Number: L12020091 Department: Conventionals Analyst: Deanna Hesson

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: Nitrate is reported as the difference of nitrate-nitrite (28 day hold) and nitrite (48 hour hold). Both analysis were analyzed within the appropriate hold time. The nitrate hold time is within compliance.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met. **Duplicates:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42234

Imma/bsson

Approved By: Deanna Hesson

Generated: 02/16/2012 15:01



Login Number: L12020091
Department: Conventionals

Analyst: Holly Reed

METHOD

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met. **Duplicates:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42235

Iranna / bsson

Approved By: Deanna Hesson

Generated: 02/16/2012 15:01



Login Number: L12020091
Department: Conventionals
Analyst: Holly Bood

Analyst: Holly Reed

METHOD

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met. **Matrix Spikes:** All acceptance criteria were met.

SAMPLES

Samples: The sample was stored in a refrigerator that failed. The sample became frozen for about 12 hours. The sample was thawed before analyzing.

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Narrative ID: 42047

Imma/bsson



Login Number: L12020091 Department: Conventionals Analyst: Deanna Hesson

METHOD

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)

Soil: Lloyd-Khan Methodology

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met. **Matrix Spikes:** All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42237

Iranna / bsson

Approved By: Deanna Hesson

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Generated at Feb 15, 2012 13:47



Login Number: L12020091 **Department:** Conventionals

Analyst: Holly Reed

METHOD

Analysis EPA 160.2/SM2540 D (Total Suspended Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met. **Matrix Spikes:** All acceptance criteria were met.

SAMPLES

Samples: The sample was stored in a refrigerator that failed. The sample became frozen for about 12 hours. The sample was thawed before analyzing.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 42042

Imma/bsson



Certificate of Analysis

 Sample #:
 L12020091-01
 PrePrep Method:
 N/A
 Instrument:
 ICP-THERMO2

 Client ID:
 MPL23-0212-1
 Prep Method:
 3005A
 Prep Date:
 02/06/2012 08:11

 Matrix:
 Water
 Analytical Method:
 6010B
 Cal Date:
 02/07/2012 08:55

 Workgroup #:
 WG388881
 Analyst:
 EDL
 Run Date:
 02/07/2012 18:43

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 T2.020712.184328

Sample Tag: 01 Units: mg/L

Analyte		CAS#	Result	Qual	LOQ	LOD				
Aluminum, T	otal	7429-90-5		U	0.100	0.0500				
Beryllium, To	otal	7440-41-7		U	0.00200	0.00100				
Boron, Total		7440-42-8		U	0.100	0.0500				
Calcium, Tot	al	7440-70-2	31.7		0.200	0.100				
Iron, Total		7439-89-6		U	0.100	0.0500				
Magnesium,	Total	7439-95-4	3.77		0.500	0.250				
Molybdenum	ı, Total	7439-98-7	0.00509	J	0.0100	0.00500				
Potassium,	Total	7440-09-7	2.23		1.00	0.500				
Sodium, Tota	al	7440-23-5	26.6		0.500	0.250				
Tin, Total		7440-31-5		U	0.500	0.250				
Vanadium, Total		7440-62-2	0.00733	J	0.0100	0.00500				
Zinc, Total		7440-66-6	0.0118	J	0.0200	0.0100				
J	Estimated value ; the analyte concentration wa	as less than the LO	Q.							
U	Analyte was not detected. The concentration is below the reported LOD.									

 Sample #:
 L12020091-01
 PrePrep Method:
 N/A
 Instrument:
 ELAN-ICP

 Client ID:
 MPL23-0212-1
 Prep Method:
 3015
 Prep Date:
 02/06/2012 08:24

 Matrix:
 Water
 Analytical Method:
 6020
 Cal Date:
 02/06/2012 16:22

 Workgroup #:
 WG388879
 Analyst:
 JYH
 Run Date:
 02/06/2012 19:43

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 EL.020612.194301

Sample Tag: 01 Units: mg/L

Sample lag: 01	Units: mg/L				
Analyte	CAS#	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00166		0.00100	0.000500
Barium, Total	7440-39-3	0.0198		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00489		0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8		U	0.00200	0.00100
Lead, Total	7439-92-1	0.000688	J	0.00100	0.000500
Manganese, Total	7439-96-5	0.00183	J	0.00200	0.00100
Nickel, Total	7440-02-0		U	0.00400	0.00200

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Certificate of Analysis

	Analyte	CAS#	Result	Qual	LOQ	LOD						
Selenium, Total		7782-49-2	0.00168		0.00100	0.000500						
Silver, Total		7440-22-4		U	0.00100	0.000500						
J	Estimated value; the analyte concentration was less than the LOQ.											
U Analyte was not detected. The concentration is below the reported LOD.												

Sample #: L12020091-01 PrePrep Method: N/A Instrument: ELAN-ICP Client ID: MPL23-0212-1 Prep Method: 3015 Prep Date: 02/06/2012 08:24 Matrix: Water Analytical Method: 6020 Cal Date: 02/07/2012 12:05 Workgroup #: WG388879 Analyst: JYH Run Date: 02/07/2012 15:52 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: EL.020712.155210 Sample Tag: 02 Units: mg/L CAS# Result LOQ LOD Analyte Qual Thallium, Total 7440-28-0 U 0.000200 0.000100 U Analyte was not detected. The concentration is below the reported LOD.

Sample #: L12020091-01 PrePrep Method: N/A Instrument: HYDRA Client ID: MPL23-0212-1 Prep Method: 7470A Prep Date: 02/07/2012 09:31 Matrix: Water Analytical Method: 7470A Cal Date: 02/08/2012 11:40 Workgroup #: WG389023 Analyst: PDM Run Date: 02/08/2012 12:22 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: HY.020812.122254 Sample Tag: 02 Units: mg/L Analyte CAS# Result Qual LOQ LOD Mercury 7439-97-6 U 0.000200 0.000100 U Analyte was not detected. The concentration is below the reported LOD.

Sample #: L12020091-01 PrePrep Method: N/A Instrument: HYDRA Client ID: MPL23-0212-1 Prep Date: 02/07/2012 09:31 Prep Method: 7470A Analytical Method: 7470A Cal Date: 02/08/2012 08:28 Matrix: Water Run Date: 02/08/2012 09:13 Workgroup #: WG389023 Analyst: PDM Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: HY.020812.091318 Sample Tag: 01 Units: mg/L

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Sulfate

Lab Report #: L12020091
Lab Project #: 3005.011
Project Name: White Sands MR
Lab Contact: Stephanie Mossburg

1.00

0.500

Certificate of Analysis

Sample #: L12020091-01 PrePrep Method: N/A Instrument: IC2 Client ID: MPL23-0212-1 Prep Method: 300.0 Prep Date: 02/09/2012 01:50 Matrix: Water Analytical Method: 300.0 Cal Date: 12/21/2011 13:49 Workgroup #: WG389105 Analyst: JBK Run Date: 02/09/2012 07:58 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: 120209120758.54 Sample Tag: 01 Units: mg/L Analyte CAS# Result Qual LOQ LOD Chloride 16887-00-6 12.4 0.200 0.100 Fluoride 16984-48-8 0.287 0.200 0.100

14808-79-8

48.6

Sample #: L12020091-01 PrePrep Method: N/A Instrument: ORION-4STAR Client ID: MPL23-0212-1 Prep Method: 9040C Prep Date: N/A Analytical Method: 9040C Matrix: Water Cal Date: Workgroup #: WG388761 Analyst: HJR Run Date: 02/06/2012 16:15 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: OS12020715183401 Sample Tag: Units: UNITS Analyte CAS# Result Qual LOQ LOD Corrosivity pH 10-29-7 7.80 0.000 0.000

Instrument: SMARTCHEM Sample #: L12020091-01 PrePrep Method: N/A Client ID: MPL23-0212-1 Prep Method: 310.2 Prep Date: N/A Matrix: Water Analytical Method: 310.2 Cal Date: 02/07/2012 12:20 Workgroup #: WG388932 Run Date: 02/07/2012 12:30 Analyst: DIH Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: SC120207004.024 Units: mg/L Sample Tag: 01 Analyte CAS# Result Qual LOQ LOD Alkalinity, Carbonate (as CaCO3) U 20.0 10.0 U Analyte was not detected. The concentration is below the reported LOD.

Sample #:	L12020091-01	PrePrep Method:	N/A		Instrument:	SMARTCHEN	1			
Client ID:	MPL23-0212-1	Prep Method:	310.2		Prep Date:	N/A				
Matrix:	Water	Analytical Method:	310.2		Cal Date:	02/07/2012 12	2:20			
Workgroup #:	WG388932	Analyst:	DIH		Run Date:	02/07/2012 12:30				
Collect Date:	02/02/2012 11:40	Dilution:	1		File ID:	SC120207004.024				
Sample Tag:	01	Units:	mg/L							
	Analyte	CAS	#	Result	Qual	LOQ	LOD			
Alkalinity, Total (as	CaCO3)			96.7		20.0	10.0			

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Certificate of Analysis

Sample #: L12020091-01 PrePrep Method: N/A Instrument: SMARTCHEM

 Client ID:
 MPL23-0212-1
 Prep Method:
 310.2
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 310.2
 Cal Date:
 02/07/2012 12:20

 Workgroup #:
 WG388932
 Analyst:
 DIH
 Run Date:
 02/07/2012 12:30

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 SC120207004.024

Sample Tag: 01 Units: mg/L

Analyte CAS # Result Qual LOQ LOD
Alkalinity, Bicarbonate (as CaCO3) 96.7 20.0 10.0

Sample #: L12020091-01 PrePrep Method: N/A Instrument: UV-120-1V

 Matrix:
 Water
 Analytical Method:
 9014-9010C
 Cal Date:
 02/08/2012 08:25

 Workgroup #:
 WG388944
 Analyst:
 JBK
 Run Date:
 02/08/2012 08:30

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 1V.1202080830-07

Sample Tag: Units: mg/L

Analyte CAS# Result Qual LOQ LOD

Cyanide 57-12-5 U 0.0100 0.00500

U Analyte was not detected. The concentration is below the reported LOD.

Sample #: L12020091-01 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL23-0212-1 Prep Method: SM4500-CN-I Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-I
 Cal Date:
 02/08/2012 08:25

 Workgroup #:
 WG388947
 Analyst:
 JBK
 Run Date:
 02/08/2012 08:40

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 1V.1202080840-18

Sample Tag: wd Units: mg/L

Analyte CAS# Result Qual LOQ LOD
Cyanide, Weak/Dissociable 57-12-5 U 0.0100 0.00500

U Analyte was not detected. The concentration is below the reported LOD.

Sample #: L12020091-01 PrePrep Method: N/A Instrument: UV-120-1V

Client ID: MPL23-0212-1 Prep Method: SM4500-CN-C,G Prep Date: N/A

 Matrix:
 Water
 Analytical Method:
 SM4500-CN-C,G
 Cal Date:
 02/14/2012 10:45

 Workgroup #:
 WG389446
 Analyst:
 DLP
 Run Date:
 02/14/2012 13:40

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 1V.1202141340-06

Sample Tag: D02 Units: mg/L

AnalyteCAS #ResultQualLOQLODCyanide, Amenable to Chlor.57-12-5U0.01000.00500

U Analyte was not detected. The concentration is below the reported LOD.

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Certificate of Analysis

 Sample #:
 L12020091-01
 PrePrep Method:
 N/A
 Instrument:
 YSI-32

 Client ID:
 MPL23-0212-1
 Prep Method:
 120.1
 Prep Date:
 N/A

 Matrix:
 Water
 Analytical Method:
 120.1
 Cal Date:

 Workgroup #:
 WG388884
 Analyst:
 DLP
 Run Date:
 02/06/2012 14:30

 Collect Date:
 02/02/2012 11:40
 Dilution:
 1
 File ID:
 32.1202061430-17

Sample Tag: Units: umhos/cm

 Analyte
 CAS #
 Result
 Qual
 LOQ
 LOD

 Conductivity
 328
 1.00
 0.500

Sample #: L12020091-01 PrePrep Method: N/A Instrument: SMARTCHEM Client ID: MPL23-0212-1 Prep Method: 350.1 Prep Date: N/A Matrix: Water Analytical Method: 350.1 Cal Date: 02/07/2012 08:29 Workgroup #: WG388904 Analyst: DIH Run Date: 02/07/2012 08:52 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: SC120207001.033 Sample Tag: 01 Units: mg/L CAS# Result Qual LOQ LOD Analyte Nitrogen, Ammonia 7664-41-7 U 0.0500 0.100 U Analyte was not detected. The concentration is below the reported LOD.

Sample #: L12020091-01 PrePrep Method: N/A Instrument: SMARTCHEM Client ID: MPL23-0212-1 Prep Method: 353.2 Prep Date: N/A Matrix: Water Analytical Method: 353.2 Cal Date: 02/03/2012 13:00 Workgroup #: WG388788 Analyst: DIH Run Date: 02/06/2012 09:16 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: SC12020614515201 Sample Tag: Units: mg/L CAS# LOD Analyte Result Qual LOO Nitrate-Nitrite (as N) 1.55 0.0500 0.0250

Instrument: UV-120-1V Sample #: L12020091-01 PrePrep Method: N/A Client ID: MPL23-0212-1 Prep Method: SM4500-P-E-20th Prep Date: N/A Matrix: Water Analytical Method: SM4500-P-E-20th Cal Date: 12/21/2011 14:35 Workgroup #: WG388759 Analyst: HJR Run Date: 02/03/2012 14:35 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: 1V.1202031435-05 Sample Tag: Units: mg/L CAS# LOD Analyte Result Qual LOQ Orthophosphate 14265-44-2 U 0.0500 0.0250 U Analyte was not detected. The concentration is below the reported LOD.

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Certificate of Analysis

Sample #: L12020091-01 Instrument: OVEN PrePrep Method: N/A Client ID: MPL23-0212-1 Prep Method: 160.1/SM2540C Prep Date: N/A Matrix: Water **Analytical Method: 160.1** Cal Date:

Workgroup #: WG388846 Analyst: HJR Run Date: 02/06/2012 12:33 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: EN.1202061233-04

Sample Tag: Units: mg/L

Analyte CAS# Result Qual LOQ LOD **Total Dissolved Solids** 226 20.0 10.0

Sample #: L12020091-01 PrePrep Method: N/A Instrument: TOC-VWP Client ID: MPL23-0212-1 Prep Method: 415.1 Prep Date: N/A Matrix: Water **Analytical Method: 415.1** Cal Date: 12/06/2011 09:40 Workgroup #: WG388670 Analyst: DIH Run Date: 02/03/2012 14:20 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: TC02032012.024 Sample Tag: 01 Units: mg/L CAS# LOD Analyte Result Qual LOQ 0.500 Total Organic Carbon 1.39 1.00

Sample #: L12020091-01 PrePrep Method: N/A Instrument: OVEN Client ID: MPL23-0212-1 Prep Method: 160.2/SM2540D Prep Date: N/A

Matrix: Water **Analytical Method: 160.2** Cal Date:

Workgroup #: WG388844 Analyst: HJR Run Date: 02/06/2012 12:31 Collect Date: 02/02/2012 11:40 Dilution: 1 File ID: EN.1202061231-04

Sample Tag: Units: mg/L

Analyte	CAS#	Result	Qual	LOQ	LOD
Total Suspended Solids			U	5.00	2.50

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Microbac Laboratories Inc. Ohio Valley Division Analyst List February 16, 2012

Microbac Laboratories Inc. List of Valid Qualifiers February 16, 2012

Qualkey: DOD

Qualifier	Description
*	
	Surrogate or spike compound out of range Correlation coefficient for the MSA is less than 0.995
+	Result is less than the associated numerical value.
< >	Result is greater than the associated numerical value.
Á	See the report narrative
В	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
С	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E EDL	Estimated concentration due to sample matrix interference
EMPC	Elevated sample reporting limits, presence of non-target analytes Estimated Maximum Possible Concentration
F. S	Estimated result below guantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
1	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value; the analyte concentration was greater than the highest standard
J	Estimated value; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B J,P	Analyte detected in both the method blank and sample above the MDL. Estimate; columns don't agree to within 40%
J,S	Estimate, columns don't agree to within 40 % Estimated concentration; analyzed by method of standard addition (MSA)
5,5 L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentativlely identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL).
ND, L ND, S	Not detected; sample reporting limit (RL) elevated due to interference Not detected; analyzed by method of standard addition (MSA)
NE, S	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
Р	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA RE	Reanalysis confirms reported results
S	Reanalysis confirms sample matrix interference Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the analyte was analyzed for, but not detected.
UQ W	Undetected; the analyte was analyzed for, but not detected.
VV X	Post-digestion spike for furnace AA out of control limits Exceeds regulatory limit
x, s	Exceeds regulatory limit Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below
_	

^{***}Special Notes for Organic Analytes



Microbac Laboratories Inc. List of Valid Qualifiers February 16, 2012

DOD	Ouglkov
עטע	Qualkey:

- Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
- 3. N-nitrosodiphenylamine cannot be separated from diphenylamine.

- 3. Methylphenol and 4-Methylphenol are unresolvable compounds.
 5. m-Xylene and p-Xylene are unresolvable compounds.
 6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent.

Microbac

Phone: 740-373-4071 Fax: 740-373-4835	Program	Cwa	000	☐ Other		REQUIREMENTS			1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -									Date Time Received by: (Signature)	Remarks:	-
Microbac CHAIN-OF-CUSTODY RECORD	~	~gv	hOJ	4,9	201 514 64:01 H d	ALZ ZE	X X X X X X X X												221080822107	Jana Struckler
	M	Contact Phone #: 505 - 8920			J. Alan	Date Time Matrix*	M 0/11											B Time Re Microbac OVD (S) Received: 02/03/2012 10:30	Time Re (S)	
COC No. A 28477 158 Starlite Drive	MS	Project Contact: C		£1.	Sampler (print): Badey T. Dawk Signature.	Comp	MPL23-0212-1 X 2-3-12											(Signature) Karel 2-3-12	Relinquished by: 6 Date (Signature)	*Water (W), Soil (S), Soild Waste (SD), Unknown (X)

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Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L12020091
Account: 3005
Project: 3005.011

Samples: 1

Due Date: 14-FEB-2012

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L12020091-01</u> 934328 300

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	WET	03-FEB-2012 11:45	CLS		
2	ANALYZ	WET	SEM	07-FEB-2012 08:45	JBK	DIH	
3	STORE	WET	A1	09-FEB-2012 09:01	JKT	JBK	

Samplenum Container ID Products

L12020091-01 934329 ALK ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		
2	ANALYZ	W1	WET	03-FEB-2012 12:03	DIH	JKS	
3	STORE	WET	A1	08-FEB-2012 09:13	JKS	DIH	

Samplenum Container ID Products

L12020091-01 934330 COND COR-PH PO4

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	pН
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		
2	ANALYZ	W1	WET	03-FEB-2012 11:52	DIH	JKS	
3	STORE	WET	A1	08-FEB-2012 08:07	JKS	DLP	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u> <u>L12020091-01</u> 934331 TDS TSS

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		
2	ANALYZ	W1	WET	04-FEB-2012 12:35	DIH	JKS	
3	STORE	WET	A1	09-FEB-2012 08:29	JKS	HJR	

A1 - Sample Archive (COLD) A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login

W1 - Walkin Cooler in Login



Microbac Laboratories Inc.

Internal Chain of Custody Report

Login: L12020091 Account: 3005 Project: 3005.011

Samples: 1

Due Date: 14-FEB-2012

Samplenum Container ID Products

L12020091-01 934332 NH3 NO3NO2 TOC

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	Нq
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		<2
2	ANALYZ	W1	WET	03-FEB-2012 12:03	DIH	JKS	
3	STORE	WET	A1	10-FEB-2012 07:41	AZH	TMM	

Samplenum Container ID Products

L12020091-01 934333 AG-MS AL AS-MS B BA-MS BE-AX CA CD-MS CO-MS CF

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	pН
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		
2	ANALYZ	W1	MET	04-FEB-2012 13:05	DIH	JKS	
3	STORE	DIG	A1	07-FEB-2012 12:16	JKS	ERP	

<u>Samplenum</u> <u>Container ID</u> <u>Products</u>

L12020091-01 934334 CN CN-A CN-WD

Bottle: 1

Seq.	Purpose	From	То	Date/Time	Accept	Relinquish	рН
1	LOGIN	COOLER	W1	03-FEB-2012 11:45	CLS		
2	ANALYZ	W1	WET	04-FEB-2012 12:36	DIH	JKS	
3	STORE	WET	A1	15-FEB-2012 08:10	JKS	DLP	

A1 - Sample Archive (COLD) A2 - Sample Archive (AMBIENT)

F1 - Volatiles Freezer in Login

V1 - Volatiles Refrigerator in Login

W1 - Walkin Cooler in Login

